SUPERFUND
AND MINING MEGASITES

LESSONS FROM THE COEUR D'ALENE RIVER BASIN

Committee on Superfund Site Assessment and Remediation in the Coeur d'Alene River Basin

Board on Environmental Studies and Toxicology

Division on Earth and Life Studies

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Preface

The U.S. Environmental Protection Agency (EPA) was established in 1970 to protect human health and the natural environment. The agency's mission includes enforcing and implementing environmental laws enacted by Congress, assessing environmental conditions, and solving current and anticipating future environmental issues. To assist EPA in addressing risks associated with chemical emergencies as well as abandoned hazardous waste sites, Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in 1980, better known as the Superfund Act. The Superfund program addresses short- and long-term risks of chemical spills and supports the permanent cleanup and rehabilitation of hazardous waste sites.

In 2002, Congress instructed EPA to ask the National Research Council (NRC) to conduct an independent evaluation of the Coeur d'Alene River basin Superfund site in northern Idaho as a case study to examine EPA's scientific and technical practices in Superfund megasites, including physical site definition, human and ecologic risk assessment, remedial planning, and decision making. NRC established the Committee on Superfund Site Assessment and Remediation in the Coeur d'Alene River Basin. In this report, the committee analyzes the record of decision and supporting documents from this Superfund site to assess the adequacy and application of EPA's own Superfund guidance in terms of available scientific and technical knowledge and best practices.

In the course of preparing this report, the committee held five meetings, including public sessions in Washington, DC; Wallace, Idaho; and Spokane, Washington—where local, state, tribal, and federal officials, as well as rep-

resentatives from the private sector and nongovernmental organizations, including regulated industries and citizen groups, were invited to meet with the committee and present their views on Superfund activities in the Coeur d'Alene River basin. Interested members of the public were also given an opportunity to speak on these occasions. The following individuals spoke at these meetings: U.S. Senator Larry Craig; U.S. Senator Michael Crapo; U.S. Congressman C. L. "Butch" Otter; Brian Cleary, counsel to Coeur d'Alene tribe; Ernest Stensgar, Chairman of the Coeur d'Alene tribe; Phillip Cernera, Coeur d'Alene tribe; Alfred Nomee, Coeur d'Alene tribe; Ian von Lindern, TerraGraphics Environmental Engineering; John Roland, Washington Department of Ecology; Robert Hanson, Mine Waste program manager; Stephen Allred, director, Idaho Department of Environmental Quality; Ron Roizen, Bill Rust, Frank Frutchey, Lee Haynes, Jack Riggs, Bob Hopper, Fred Brackebusch, Ivan Linscott, Shoshone Natural Resources Coalition Science Committee; Fred Kirschner, Spokane tribe; Rogers Hardy, Citizens Against Rail to Trail/Citizens Advocating Responsible Treatment; Thomas Pedersen, University of Victoria; David Moershel, Spokane physician and president of the Lands Council; Allen Isaacson, professor, Spokane Community College and former U.S. Forest Service supervisory hydrologist for the Idaho Panhandle National Forest; Bruce Lanphear, director, Cincinnati Children's Environmental Health; Jerry Cobb, Panhandle Health District; Brad Sample, CH2M Hill; David Fortier, environment protection specialist, Bureau of Land Management; Paul Woods, Laura Balistrieri, Stephen Box, Nelson Beyer, U.S. Geological Survey; Daniel Audet, U.S. Fish and Wildlife Service; and Elizabeth Southerland, Michael Gearheard, Sheila Eckman, Anne Dailey, Mary Jane Nearman, Angela Chung, Marc Stifelman, Cami Grandinetti, Bill Adams, EPA.

In addition to the information from those presentations, the committee made use of the peer-reviewed scientific literature; government agency reports; information submitted to the committee by citizens, advocacy groups, and industry; and unpublished database information as well as related statistics and data directly obtained from EPA and the states of Idaho and Washington.

This report consists of nine chapters. The first chapter provides an overview of the committee's charge, the issues related to this charge, and the approach the committee took in completing its task. Chapters 2 and 3 review the history of the Coeur d'Alene mining district and the relationship between the biologic, human, and physical environments in the river basin. Chapters 4-8 review scientific and technical questions relating to the remedial investigation, human and ecologic risk assessments, and remedial decisions set forth in EPA's record of decision for the site and the supporting documents. Finally, Chapter 9 discusses lessons learned from the Coeur

d'Alene experience and suggests a new paradigm for addressing environmental and health concerns at large complex mining sites.

We wish to thank Earl Bennett, University of Idaho, and Teresa Bowers, Gradient Corporation, for their valuable service while they served on the committee. The committee is also grateful for the assistance of NRC staff in preparing this report: Karl Gustavson, study director; James Reisa, director of the Board on Environmental Studies and Toxicology; Ray Wassel, program director; Ruth E. Crossgrove, senior editor; Cay Butler, editor; Mirsada Karalic-Loncarevic and Bryan Shipley, research associates; and Olukemi Yai, program assistant; as well as John Brown, Emily Brady, Dominic Brose, Alexandra Stupple, and others who supported the project as part of the Board's staff.

Finally, I thank the members of the committee for their dedicated efforts throughout the development of this report.

David J. Tollerud, MD, MPH
Chair, Committee on Superfund Site Assessment and
Remediation in the Coeur d'Alene River Basin

Acknowledgment of Review Participants

This report has been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by NRC's Report Review Committee. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published report as sound as possible and to ensure that the report meets institutional standards for objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process. We wish to thank the following individuals for their review of this report: Craig Boreiko, International Lead Zinc Research Organization; Stephen E. Box, U.S. Geological Survey; Gary Diamond, Syracuse Research Corporation; Lorne G. Everett, Lakehead University and Shaw Environmental & Infrastructure, Inc.; Michael C. Kavanaugh, Malcolm Pirnie, Inc.; Phillip E. LaMoreaux, P.E. LaMoreaux & Associates; Bruce P. Lanphear, Cincinnati Children's Hospital Medical Center; Dwayne Moore, Cantox Environmental, Inc.; Darrell K. Nordstrom, U.S. Geological Survey; Dianne Nielson, Utah Department of Environmental Quality; Benjamin Parkhurst, HAF Inc.; Katherine N. Probst, Resources for the Future; Joyce S. Tsuji, Exponent, Inc.; and Stephen Washburn, ENVIRON.

Although the reviewers listed above have provided many constructive comments and suggestions, they were not asked to endorse the conclusions or recommendations, nor did they see the final draft of the report before its release. The review of this report was overseen by Dr. David G. Hoel, Medical University of South Carolina, and Dr. Perry L. McCarty, Stanford University. Appointed by the NRC, they were responsible for making certain

that an independent examination of this report was carried out in accordance with institutional procedures and that all review comments were carefully considered. Responsibility for the final content of this report rests entirely with the authoring committee and the institution.

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